Journal of Physics Condensed Matter 2008 vol.20 N45

Magnetic susceptibility of YbRh2Si2 and YbIr 2Si2 on the basis of a localized 4f electron approach

Kutuzov A., Skvortsova A., Belov S., Sichelschmidt J., Wykhoff J., Eremin I., Krellner C., Geibel C., Kochelaev B.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

We consider the local properties of the Yb3+ ion in the crystal electric field in the Kondo lattice compounds YbRh2Si2 and YbIr2Si2. On this basis we have calculated the magnetic susceptibility, taking into account the Kondo interaction in the simplest molecular field approximation. The resulting Curie-Weiss law and Van Vleck susceptibilities could be excellently fitted to experimental results over a wide temperature interval where thermodynamic and transport properties show non-Fermi-liquid behavior for these materials. © 2008 IOP Publishing Ltd.

http://dx.doi.org/10.1088/0953-8984/20/45/455208